

680nm Multi-Mode 3 Aperture array VCSEL on a PLCC 3020 Package with Encapsulant

Part number code: IO-0680M-000-DP01

PRODUCT DESCRIPTION

A Multi- transverse mode 680nm VCSEL 3 aperture array (T12) designed for applications that requires efficient optical power source along with visible range of light.

Major Applications:

- Point of care medical devices
- Biometric sensors
- Low light laser therapy
- Industrial sensors
- Pulse oximetry

Features:

- Low divergence angle
- Narrow Spectral width
- Low operating current
- Linear polarization orientated along chip edge



COMPLIES WITH IEC 60825-1, 2nd Edition 2007.
COMPLIES WITH 21 CFR 1040.10 AND 1040-10.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER
NOTICE NO.50 DATED 27 MAY 2001.



Absolute Maximum Ratings

Parameter	Rating	Notes
Storage temperature	-40 to 125 °C	For PLCC packages: -40 to 100°C
Operating temperature (VCSEL)	-20°C to 50 °C	
Lead solder temperature	260°C, 10 seconds	
CW current (VCSEL)	20 mA	(Note 1)
Laser reverse voltage	5 V	(Note 2)

Note 1: The maximum CW laser current in the Absolute Maximum Ratings is valid for the operating temperature noted at the top of this table; however, the maximum CW laser current decreases with increasing temperature. Contact Vixar for maximum CW laser current values at other temperatures.

Note 2: For details refer to the Vixar Application Note "VCSEL EOS/ESD Considerations and Lifetime Optimization".

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. These are stress ratings only. Functional operation of the device at these or any other conditions beyond those indicated for extended periods of time may affect device reliability.

Electro-Optical Characteristics

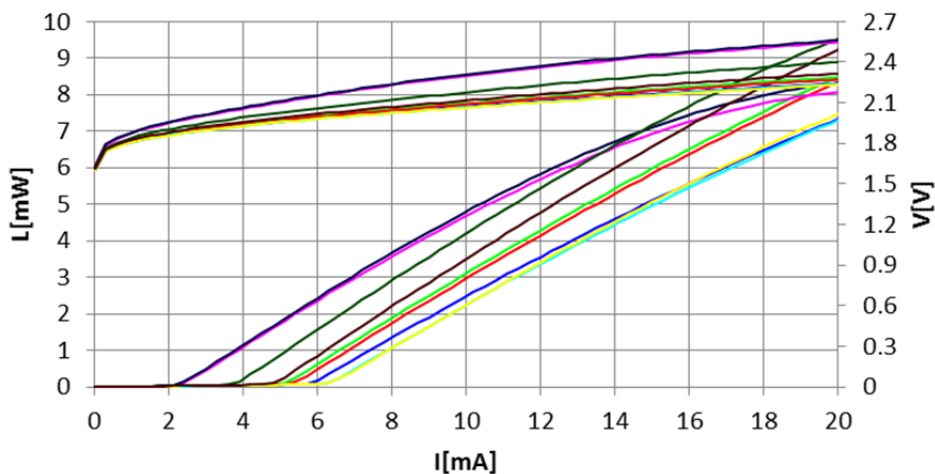
VCSEL Operating Temp (Tv) =25°C & Operating Current=15mA unless otherwise stated)

Parameter	Symbol	Units	Minimum	Typical	Maximum	Notes
Threshold current	I _{th}	mA	2	4.5	7	
Operating voltage	V _f	Volts	--	2.2	2.6	
Series resistance (VCSEL)	R _s	Ohms	--	25	--	
Slope efficiency	SE	mW/mA	--	0.7	--	
Optical output power	L _{op}	mW	5	7	9	T=25°C
Reverse breakdown voltage		V	10	--	--	I _r ≤ 1nA
Operating wavelength	λ _{op}	nm	670	680	690	
Beam divergence 1/e ²		deg	23	27	30	Whole angle
Beam divergence FWHM	FWHM	deg	18	21	23	Whole angle
Wavelength temp. coefficient		nm/°C		0.045		
Rise time		ps	--	--	150	20%-80%
Fall time		ps	--	--	150	20%-80%

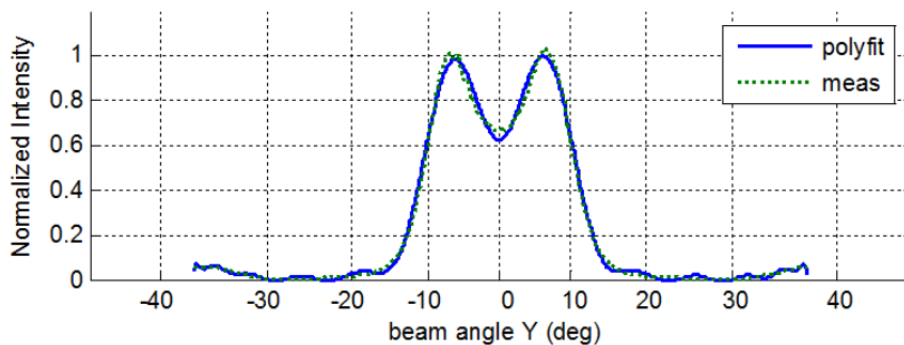
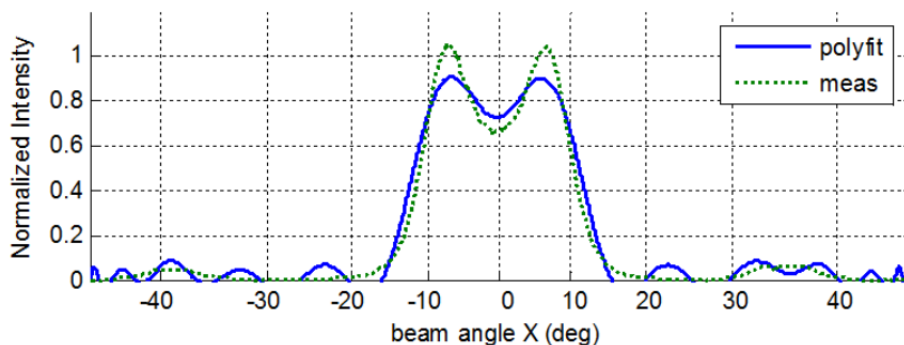


TYPICAL PERFORMANCE CURVES:

LIV data of samples



Sample Beam Divergence at room temperature





ORDERING INFORMATION

Description	Package	Part Number
680 nm Multi-mode 3 Aperture array VCSEL on a PLCC-2 package with encapsulant	PLCC-2	I0-0680M-0000-DP01



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